Wall Street's losses may be computer science's gain, as talent migrates from IT to hedge funds and back again. PAGE 38

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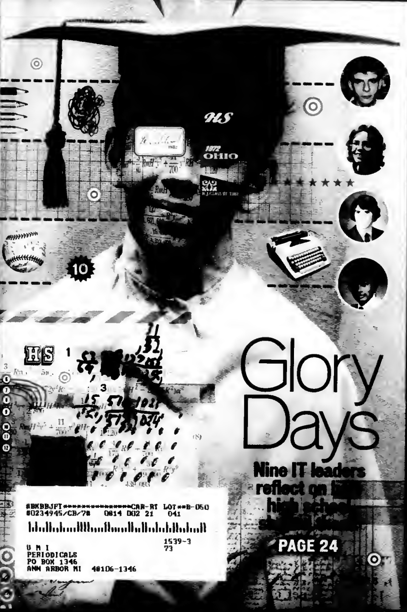

Glory Days

Nine IT leaders reflect on [illegible] high school [illegible]

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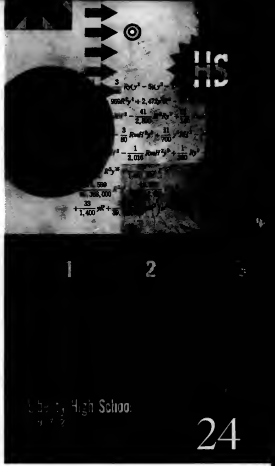

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COVER ILLUSTRATION BY WALTER VASCONCELOS

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EDITOR'S NOTE

Don Tennant

Banishing Ghosts

AT THE CA World conference in Las Vegas last week, CA CEO John Swainson made a memorable entrance for his opening keynote address. A Swainson avatar appeared in a Second Life-like environment on the big screens, flying majestically through the Las Vegas sky and into the ornately rendered virtual halls of The Venetian hotel.

When the (slightly less buff) real thing walked onto the stage, he was chuckling, probably at the silliness of it all. I really wasn't paying attention to what he was saying, because his entrance had caused my mind to drift back to the previous CA World event, where I interviewed Swainson for the first time.

It was April 2007, and the Special Litigation Committee of CA's board of directors had just announced its finding that CA co-founder and former CEO Charles Wang had instilled a "culture of fear" that permeated CA from its inception. When I asked Swainson if he still saw any vestiges of that, he said there were none.

"The ghost of Sanjay is in the halls," Swainson said, referring to former CEO and Wang successor Sanjay Kumar. "But there's not much of Charles left at CA."

So how was CA able to banish the ghost of Charles Wang? There's a two-part answer to that question.

The first part has to do with courage and openness. Neither Swainson nor any other CA executive I've spoken with in recent years has ever shied away from a candid discussion of CA's past. Swainson might have been forgiven had he banned talk of the "old CA." Instead, he opted for the cleansing that only honesty and forthrightness can provide.

The second part has to do with levity. There is something remarkably therapeutic about maintaining a sense of humor, and it's difficult to find a CEO with as ready a laugh as Swainson. It's downright impossible to find one with as strong a determination to avoid taking himself too seriously, as his grand entrance last week attested.

I made a good-natured jab at CA's past, but there was no defensiveness, no dismissiveness, on the part of the CA executives.

That the good humor has trickled down through CA's executive ranks was evident last week at the Senior Executive Networking Forum, a two-day summit for some of CA's top customers at CA World. I was invited to speak at the forum, and I was introduced by George Fischer, head of CA's worldwide sales. When I took the podium, I opened by noting that Fischer had become part of CA in 1999 with the company's acquisition of Platinum Technology. I also noted that that acquisition came just one year after Flip Filipowski, Platinum's CEO at the time, passionately told me that there was no way his company would ever allow itself to be acquired by the widely hated CA.

The anecdote was clearly meant as a good-natured jab at CA's past, and it drew as much of a chuckle from Fischer as from anyone else. It wasn't the only reference that the speakers and attendees made to the "old CA" during the forum, but there was no defensiveness, no dismissiveness, on the part of any of the CA executives present. Instead, they tended to joke about it. It's difficult not to admire that.

FOOTNOTE

One of the speakers at the forum was Vicki Hamilton, senior vice president of enterprise performance at Turner Broadcasting. Hamilton is African-American, and I wanted to get her input on the points I'd made in my two previous Editor's Notes about African-Americans in IT. So when I introduced myself, I asked her if it would be OK to speak with her in her capacity as an African-American woman in IT.

"Absolutely," she said with a smile. She made it clear that she genuinely appreciated the overture, and we went on to have one of the most enlightening conversations about race that I've ever had.

It reaffirmed what I'd already learned. It's OK for non-African-Americans to notice that a person is black. In fact, it needs to be noticed so the problems that still haunt us can be discussed. The "colorblind" game needs to end so that we can banish those ghosts once and for all. ■

Don Tennant *is editorial director of* Computerworld *and* InfoWorld. *Contact him at don_tennant@computerworld.com, and visit his blog at* http://blogs.computerworld.com/tennant.

■ LETTERS

Business Technologists Are Already Among Us

When I was an IBM systems engineer in 1967, I was part of a grand tradition of knowing the customer's business — sometimes better than the customer understood it himself. This wasn't altruistic behavior; it made good sense and generated business loyalty.

At that time, we were pointed to as the wave of the future, technical folks who also knew the customer's business (what Don Tennant calls business technologists, or BTs, in his Nov. 3 Editor's Note, "What, Me Worry?")

Well, here I am 40 years later, still doing the same thing, but now for government, and I see no sign of anything changing in the near or even distant future. Why? Because management still has the mentality of "Why isn't Bob coding?" instead of "Why isn't Bob learning the customer's business?"

What we need isn't more BTs; it's more enlightened management. The managers we have now are still puzzled about why so many IT projects fail. When management becomes enlightened, the number of BTs will increase, but do you really see that happening in this economic climate?

■ **Danny Clarke,** *senior technology systems developer, Reno, Nev.*

Tennant didn't mention that there are a million of us one- or two-person IT shops that have had to do just what he recommends forever. In my company, every employee — from administration to the warehouse — has a need for technology. We give it to them, but we have to learn about their function to do our job well, and in many cases, we perform their function when the situation arises. They're not troubleshooting server issues, but we're doing payroll and receiving inventory.

This company does $30 million a year in sales and has 60 users, and I have to know everything there is to know about what does or doesn't make us successful.

■ **Stephen Grabowski,**
IS manager, Form Services Inc., Linthicum Heights, Md., sgrabo@formservices.com

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2008 Holiday Gift Guide

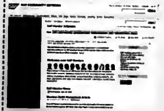
From the practical to the ridiculous to the insanely expensive, here are some ideas for just about everyone on your list.

FWIW – The Origins Of Net Shorthand

John Brandon tracks down the first recorded uses of some common Internet initialisms. Some of them may be older than you are.

Femtocell FAQ

Will you really be able to get your own personal cell phone tower someday soon? Perhaps, but there are still a lot of questions about the devices, better known as femtocells. We answer 10 of them.



Wikis That Work

Wikis are shedding their free-for-all reputation and getting down to business. We found four IT shops that are tapping the technology to transform some of their internal processes.

News Digest

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THE WEEK AHEAD

TUESDAY: Gartner opens its 27th annual data center conference, in Las Vegas. Sessions include user roundtables on topics such as developing service-level agreements.

TUESDAY: The School of the Future World Summit 2008, an annual conference held by Microsoft, begins in Seattle.

WEDNESDAY: The Gilbane Boston 2008 conference kicks off. The event will focus on technologies such as content management, enterprise search and text analytics.

INTERNET

Ballmer Rebuffs Talks of Revisiting Yahoo Acquisition

MICROSOFT CORP. has no interest in reopening negotiations to buy Yahoo Inc., despite Jerry Yang's decision last month to resign as CEO of the troubled Internet pioneer. "Acquisition discussions are finished," Microsoft CEO Steve Ballmer said at his company's annual meeting on Nov. 19 in Bellevue, Wash.

Ballmer did say that he is interested in negotiating a search collaboration agreement with Sunnyvale, Calif.-based Yahoo.

Yang early in November sought in vain to restart talks with Microsoft. It was his last attempt as CEO to turn around his company.

In May, Yang rejected Microsoft's $45 billion offer to buy Yahoo. Then, early last month, he failed to consummate a planned search advertising partnership with Google Inc.

In between, Yang held futile talks with News Corp. about a venture with its MySpace business, and with Time Warner Inc. about merging with its AOL unit.

Analysts said that whoever takes Yang's place must pare Yahoo's product lines to effectively compete in a market that is under siege by Google, Microsoft and a slew of social media companies competing for online advertising.

Yang does not appear to have the "boldness or decisiveness" that someone needs in order to lead a company competing in today's Web landscape, said Andrew Frank, an analyst at Gartner Inc. "[Yang's departure is] a sign that Yahoo needs to really find leadership that can restore confidence in the company."

Yahoo's product line is "a somewhat fragmented portfolio of services and innovations," Frank said. "Rationalizing that portfolio with or without some kind of new partner or merger is going to be very important."

David Card, an analyst at Forrester Research Inc., added that Yahoo's new CEO must decide whether to remain in the search business.

Yang has long maintained that Yahoo must retain its search business because of its potential advertising revenue, Card noted. To date, Yahoo has not been successful in search, so "the new CEO has to make a tough call on whether that is reality or not," he said.

Yahoo Chairman Roy Bostock is leading the search for a new CEO, working with Yahoo's independent directors, Yang and executive search firm Heidrick & Struggles International Inc.

Yang will reassume his former title of "chief Yahoo" once a successor is named.

— Heather Havenstein, with Nancy Gohring of the IDG News Service

Acquisition discussions are finished.

Poll:

of working members of the millennial generation polled for an Accenture Ltd. study said that they are either unaware of their companies' IT policies or don't follow them.

For example, of the 169 employed college graduates up to age 27 who were surveyed, 31% said they don't know whether their employers have policies for posting company or client information online. Some of the 40% who know their companies prohibit posting such information said they ignore the rules.

Gary Curtis, Accenture's chief technology strategist, suggested that companies appeal to millennial workers on "a logical, sound basis" to ensure that they understand that following IT rules is in their best interest

HEATHER HAVENSTEIN

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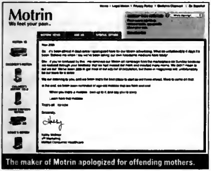
Motrin Aching From Social Media Backlash

THE MAKER of pain reliever Motrin has a lingering headache from the social media backlash to an online video advertisement that riled a large group of bloggers and Twitter users last month.

The controversy exploded into the blogosphere about two weeks ago when a group of mothers began posting critical notes on the microblogging site Twitter about an online ad created by McNeil Consumer Healthcare, a division of McNeil-PPC Inc., the Skillman, N.J.-based maker of Motrin.



The maker of Motrin apologized for offending mothers.

The ad says that although toting a baby in a sling "seems to be in fashion" and may make mothers appear more "official," it can also cause back and neck pain that can be relieved using its product.

Within days, thousands of mothers had posted comments on Twitter under the tag "MotrinMoms," most complaining that the ad is offensive. The subject was the most popular on Twitter.com for a time, and it prompted countless blog postings on other sites.

In a note on the Motrin Web site, Kathy Widmer, vice president of marketing at McNeil Consumer Healthcare, said the company quickly removed the ad from its site "because we realized through your feedback that we had missed the mark and insulted many moms. Believe me when I say we've been taking our own headache medicine here lately."

Jeremiah Owyang, an analyst at Forrester Research Inc., said in a blog post that the firestorm probably won't affect the results of searches using the word *Motrin*.

"Over time, these search results may fade away, depending on how Motrin reacts and how mothers decide to press the situation," he noted.

Andy Beal, a blogger and marketing consultant based in Raleigh, N.C., noted that the incident shows the dangers of online advertising.

"What can the rest of us learn from this? Never assume you know your target audience, [and] never assume that just because you've created something 'viral' that the sentiment will always be positive," Beal said in a blog post.

— Heather Havenstein

Short Takes

last week warned of a significant increase in exploits of a Windows security hole that it patched in October via an emergency fix. The vendor urged users to apply the patch, known as MS08-067, if they haven't done so yet.

Separately, is abandoning its consumer antivirus business and discontinuing retail sales of Windows Live OneCare next June. The tool will be replaced by a free antivirus system, code-named Morro, late next year.

said its fourth-quarter revenue grew by 5% to $33.6 billion because of growth in its PC and services businesses. Profit was $2.1 billion, down slightly from the year-earlier total of $2.2 billion.

has slashed its 2009 PC sales growth forecast by nearly two-thirds as a result of the declining economy. The research firm now projects that PC shipments will grow by 4.3%, down from its previous forecast of 11.9%.

HARDWARE

Supercomputers Finding Their Way to Desktops

IF THE DEFINITION of a personal supercomputer is that it is inexpensive, can sit on a desk and is at least within shouting distance of the Top500 systems list, new machines equipped with Nvidia Corp.'s Tesla graphics processor are among the first in that category.

At the SC08 conference in Austin last month, Nvidia and a group of systems vendors announced the release of Tesla-based desktop supercomputers. Nvidia's reference design includes four of the graphics chips, each with 240 cores. With a quad-core central processor, such a system would deliver almost 4 teraflops of performance and cost less than $9,995, Nvidia said.

A Tesla-powered machine.

Dell Inc. is among the vendors building systems that incorporate Tesla chips. "This really is the supercomputer on your desk," CEO Michael Dell told conference attendees.

The development of such offerings has advanced, in part, because of the billions of dollars being spent to create systems for gamers.

"That's the beauty of it," said Ian Watson, a chemist who uses high-performance systems at a pharmaceutical firm that he asked not be named. "The gamers of the world are paying for the development. If we can hitch ourselves to that train as it thunders past, that's very attractive."

– PATRICK THIBODEAU

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OPERATING SYSTEMS

Ballmer Ordered to Testify In 'Vista Capable' Lawsuit

MICROSOFT CORP. asked a federal judge on Nov. 20 to end a class-action lawsuit that has been the source of a treasure trove of embarrassing insider e-mails about changes made to the company's "Vista Capable" marketing program in 2006.

U.S. District Judge Marsha Pechman has yet to rule on motions calling for her to decertify the plaintiff class and issue a summary judgment dismissing the charges. But the day after the motions were filed, she ordered Microsoft CEO Steve Ballmer to testify in the lawsuit via a deposition to be held within 30 days.

Pechman rejected Microsoft's contention that Ballmer knew nothing about the vendor's decision to loosen the hardware requirements PCs had to meet to qualify for the Vista Capable designation. "Plaintiffs have met their burden in demonstrating Mr. Ballmer may have relevant, unique personal knowledge of relevant facts," the judge wrote in her deposition order.

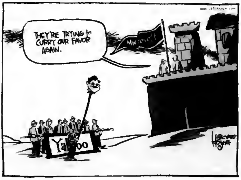
In a declaration by Ballmer submitted earlier this fall as part of Microsoft filings aimed at blocking the order for him to testify, the CEO said he "was not involved in any of the operational decisions" about Vista Capable. But after Pechman issued her ruling, a Microsoft spokesman said that the company would comply.

The marketing program was meant to assure users that PCs bought before Windows Vista shipped would be able to run the operating system. The lawsuit claims that the reclassification of some hardware as Vista Capable inflated the prices of PCs that later were deemed able to run only Vista Home Basic, which doesn't include features such as the Aero user interface.

In its motion to dismiss, Microsoft said the plaintiffs haven't shown that they paid more for PCs because of Vista Capable. They have also failed to prove that Vista Home Basic isn't a "real" version of the operating system, it said.

— Gregg Keizer

BETWEEN THE LINES *By John Klossner*


THEY'RE TRYING to CURRY OUR FAVOR AGAIN.
Microsoft
Yahoo

said Chairman and CEO John Thompson will retire from his full-time job next April Enrique Salem, the security vendor's chief operating officer, will become CEO

IBM's sys-**tem** edged out Cray Inc.'s beefed-up to retain the top spot on the biannual Top500 list of the fastest supercomputers.

Computer Associates International Inc. named **IBM** executive **John Swainson** president and CEO, anointing him as the successor to ousted CEO Sanjay Kumar.

Global Dispatches

U.K. to Bolster Data Security

LONDON – A bill under consideration in Parliament would allow U.K. Information Commissioner Richard Thomas to directly impose fines on businesses for the "deliberate or reckless loss of data."

The legislation would also permit Thomas' office to spot-check central government and local authorities for compliance with the U.K. Data Protection Act. It also calls for the information commissioner's office to publish rules on how and when organizations should notify it of data breaches.

The legislation follows a July review of U.K. data security issues by Thomas and professor Mark Walport of the Wellcome Trust, a London-based medical research charity.

The proposed legislation was unveiled last week by Lord Chancellor and Secretary of State for Justice Jack Straw, who contended that the measures would improve transparency and accountability.

Lee King,
Computerworld U.K.

Tata Opens BPO Center in China

MUMBAI, India – Tata Consultancy Services Ltd. late last month announced that it had set up a services delivery center in Tianjin, China, its fourth in the country.

The services firm said that it will use the new facility to deliver business process optimization services to clients in China, the U.S., Japan and Europe.

The Tianjin center will be designed to accommodate 300 employees per shift, according to Tata.

Tata already has delivery centers in Beijing, Shanghai and Hangzhou. The company said that 1,300 of its 121,600 employees work in China.

John Ribeiro,
IDG News Service

BRIEFLY NOTED

Microsoft Corp. last month hired Simon Leung, former president of Motorola Asia-Pacific, to replace Ya-Qin Zhang as chairman and CEO of its Chinese operations, which include Taiwan.

Sumner Lemon,
IDG News Service

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The McColo Takedown:

Online Neighborhood Watch, Or Internet Frontier Justice?

That may not be the best approach, but it may be the only viable one for now.

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FEW TEARS were shed when McColo Corp., a San Jose-based company that allegedly hosted systems for prolific purveyors of spam, malware and child pornography, was suddenly taken offline by its upstream service providers on Nov. 11.

The September takedown of another hosting firm with a similarly dodgy reputation — Intercage Inc. — also evoked little sympathy from an Internet community that clearly is fed up with the massive volumes of spam and crimeware flowing across the Web.

What's notable about the McColo and Intercage shutdowns is that they weren't initiated by law enforcement officials or the upstream ISPs themselves. Instead, the upstream providers disconnected the companies, and their customers, from the Internet based on information that was provided by security researchers.

The two cases are shining a spotlight on the ferocious struggle taking place between malware distributors and loosely aligned but highly committed groups of security researchers who are out to neutralize them.

Those who support these self-appointed Net police — and many do — liken their efforts to Neighborhood Watch programs designed to keep city streets safe. Backers claim that the effort to shut down miscreant ISPs is needed because of the inability of law enforcement agencies to deal with such a global problem, as well as a lack of applicable laws.

A few people, though, are questioning whether there is a hint of vigilantism behind the takedowns — even as they acknowledge that there may not be any other viable

Continued on page 16

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Control Workflow Control Costs **Control Operations**

Continued from page 14

options for dealing with the problem at this point.

Soon after Intercage was forced offline, for instance, Earl Zmijewski, vice president and general manager at Internet monitoring company Renesys Corp., asked in a blog post why law enforcement officials hadn't been involved. "While I'm not a big fan of cybercrime or the providers who knowingly host these activities, I can't help but wonder where law enforcement is in this story," Zmijewski wrote. "We still have laws, right?"

COLLATERAL DAMAGE?

Maxim Weinstein, manager of the anti-malware group StopBadware.org, had a similar reaction to McColo's shutdown. In a Nov. 13 blog post, Weinstein applauded the work done by security researchers. But he also voiced concern about innocent companies and individuals who might have been affected.

"What happened to those users," he wrote, "when their providers and their sites suddenly became unavailable?"

McColo hosted a staggering variety of cybercrime activity, according to a group of researchers who said they had documented the company's practices for more than two years. In addition to hosting Web sites that spewed out huge quantities of spam, McColo is alleged to have hosted child pornography and counterfeit pharmaceutical sites, as well as command-and-control servers for some of the Internet's biggest botnets.

McColo was kicked offline after *The Washington Post* gave the company's upstream service providers information about its alleged hosting activities that the *Post* had gathered from the security researchers.

Benny Ng, director of infrastructure at Hurricane Electric, a Fremont, Calif.-based ISP that was one of McColo's service providers, said his company's decision to pull the plug was based solely on what it was given by the *Post*. According to Ng, the decision was straightforward because what McColo was doing was against Hurricane Electric's terms of service.

The fear of ending up on an Internet blacklist is also a powerful motivator in such cases. The blacklists maintained by StopBadware.org and other groups are used by many security vendors and corporate IT departments as part of their efforts to block spam and malware. As a result, ending up on the lists can have drastic consequences for an ISP or Web site.

Blacklist groups "basically have you over a barrel," said an executive at a hosting firm who asked not to be named. "So yes, we do pay attention to them."

However, in both the McColo and Intercage cases, the only role the security community played was to collect evidence showing that the two companies were hosting clients involved in all sorts of criminal activity, said Garth Bruen, founder of the anti-spam group KnujOn.

The decisions to pull the plug on the hosting firms were made solely by the upstream service providers, Bruen noted. "That was their choice to do it," he said. "We just gave them the information to help them make up their mind."

What's going on is "a little closer to vigilance than it is to vigilantism," StopBadware.org's Weinstein said in an interview. The security researchers who track alleged bad apples "are not inciting specific action against any company," he added. "What they're doing is publishing data and putting it in front of people who are making these decisions."

Often, though, it's hard to know for sure if a hosting company is complicit in the illegal activities taking place on its networks, or the extent of its culpability if it is aware of them, Weinstein acknowledged. "That's definitely a concern," he said. "But I don't think there's an easy answer to it."

Similar doubts were expressed even in the *Post*'s story about the McColo takedown that the newspaper itself had helped trigger. According to the *Post*, the extent to which McColo could be held legally responsible for the activities of its hosted clients is unclear. There also is no evidence that McColo has ever been charged with any crimes, the newspaper reported.

Renesys' Zmijewski said he's surprised by the apparent lack of action on the part of U.S. law enforcement agencies to curb either McColo or Intercage. "It's not like these companies were in the middle of nowhere," he said, adding that many of the activities carried out on their systems were clearly illegal.

Invoking the rule of law would be preferable to having private groups initiate their own policing efforts, Zmijewski said. But he noted that with law enforcement not getting involved, it's no surprise that people have begun "taking matters into their own hands." For now, he said, "this perhaps is the only option." ■

but Don't Stop,

Virtually everyone acknowledges that the ongoing efforts to police Web hosting firms likely won't be enough to completely eradicate spammers and cybercriminals from the Internet.

In fact, many operations that are shut down by one upstream ISP often resurface a short time later at another location on the Net. That was the case with Intercage in September, at least temporarily. And the same thing happened with McColo, which briefly came back online on Nov. 15 via an ISP based in Sweden.

But the anti-malware campaigns are at least hampering the ability of cybercrooks to continue running their operations and making it more expensive for them to do so, KnujOn founder Garth Bruen said.

For instance, almost immediately after McColo lost its Internet connections, spam volumes plunged by more than 40%, according to researchers at IronPort Systems Inc.

The shutdown also forced the operators of some of the largest botnets in the world to try to relocate their command-and-control servers. Joe Stewart, director of malware research at SecureWorks Inc., estimated that crooks were no longer able to send commands to more than 500,000 compromised computers, or bots.

But even if those bots have been permanently cut off from their criminal overlords, it may not mean the end of botnets known by names such as Rustock and Srizbi. It's all too easy for cybercrooks to buy access to compromised systems, or to launch campaigns to seed their malware in new machines. "I'm sure they'll be back," Stewart said.

JAIKUMAR VIJAYAN
AND GREGG KEIZER

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NEWS ANALYSIS

Challenges Await Obama in Bid to Build Up Security

President Bush is leaving several ongoing IT security projects to his successor. But even more work is needed to protect federal systems.

By Jaikumar Vijayan

AS PRESIDENT-ELECT Barack Obama prepares to take office, the task of upgrading the security of federal computer systems continues to be a work in progress.

Several cybersecurity initiatives launched during the Bush administration are still years away from being completed. Others are closer to completion but don't do enough by themselves to defend networks and systems against increasingly sophisticated attacks, according to IT security analysts.

And, they said, resolving the security issues will require Obama to focus on more than just finishing the ongoing initiatives.

For starters, he needs to end the policy of tying federal cybersecurity efforts so closely to the post-9/11 war on terror, said Gartner Inc. analyst John Pescatore. "The terrorist attacks sent the Bush administration in the wrong direction" on cybersecurity, Pescatore said, adding that more immediate threats to federal systems have been overlooked.

Progress has been made, claimed Karen Evans, administrator of e-government and IT at the White House Office of Management and Budget (OMB). Evans said several security initiatives launched over the past few years are already making, or will soon make, a difference.

At the top of her list is a 2004 mandate by President Bush that required federal agencies to issue new smart-card identity credentials to all employees and contractors. But even that program hasn't been fully implemented. Agencies were supposed to finish issuing the new ID cards in late October, but most will need at least two more years to do so.

Other projects that Evans pointed to include a recent upgrade of federal networks to the more secure IPv6 protocol and the Trusted Internet Connections program, under which agencies are working to reduce their external network connections.

Evans also cited the Federal Desktop Core Configuration (FDCC) project, which is aimed at cutting costs and boosting security by requiring agencies to employ standard security settings on all Windows PCs.

Earlier this year, President Bush also put in motion a highly classified, multiagency program called the Cyber Initiative, with a goal of bolstering the nation's ability to detect and respond to cyberthreats against critical infrastructure targets.

Tom Kellerman, vice president of security awareness at Core Security Technologies in Boston, said the Cyber Initiative marked an "awakening" in Washington about the need for stronger cybersecurity efforts.

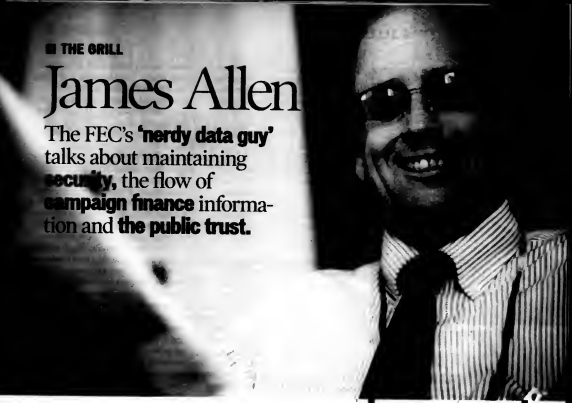
But Kellerman, who is a member of a commission that's developing cybersecurity recommendations for Obama, said much remains to be done. "The existing administration has only just begun to pay attention to cybersecurity" as a national security issue, he said.

Many of the ongoing initiatives are helping to improve security in bits and pieces, Pescatore said. But, he added, they were the result of "random edicts" from the OMB, not broad cybersecurity objectives.

Increasingly, new funding has been moving toward surveillance and monitoring initiatives related to fighting terrorism. While such efforts are needed, Pescatore said, they do little to protect federal agencies from cybercriminals.

Franklin Reeder, an independent consultant and former chief of information policy at the OMB, said the most important step for Obama is to use the government's purchasing clout to compel IT vendors to build more security capabilities into products. The FDCC program has shown that such an approach can be successful, Reeder said.

More spending is needed on security training, he added. He also thinks the feds must change how they work with the private sector on security. Existing programs, Reeder contended, "have just been convened by the government for the government." ■



James Allen

The FEC's **'nerdy data guy'** talks about maintaining **security,** the flow of **campaign finance** information and **the public trust.**

THE Federal Election Commission (FEC) is charged with tracking, reporting on and investigating anything to do with presidential and congressional campaign finance. A big and relatively new part of its charter is to provide campaign finance data to citizens via its Web site.

James Allen, who manages IT infrastructure for the organization, discussed what it takes to keep up with the ins and outs of campaign finance. As he says, "I'm the nerdy data guy, not a politician."

You've got a data center at the FEC in Washington, and you contract with an external vendor to run servers for you out of Waltham, Mass., and Herndon, Va. How do all these pieces work together? Here at the commission, we have a small data center — roughly 90 servers, a mixture of Unix and Windows. Our Unix systems handle Oracle databases; the Windows servers handle file shares, SQL databases, the Lotus Notes e-mail backbone and various support functions for the commission. I have a staff of four people to make sure all our internal servers are operational, have the proper storage and that patching is maintained. Another group of people deals with desktop issues.

Our vendor, Savvis, hosts servers for us in Waltham that handle the public-facing aspects of what we do — the data we provide the public. So they maintain our Web servers, database servers and application servers. They have round-the-clock staffing, which we do not have here, and they provide patching and keep the servers operational. They manage our network down to the core switch here at the FEC, and we have biweekly technical meetings to go over any issues.

In Herndon, there is a separate set of servers that acts as our back-end database. These take information from the various House and Senate committees that report on campaign finance. The public doesn't see this data as it appears here; this is the

Dossier

Name: James Allen

Title: Infrastructure branch manager, IT division

Organization: Federal Election Commission

Location: Washington

Favorite nonwork pastimes: Kayaking, hiking and reading

Philosophy in a nutshell: "Always do your best. Don't give up."

Four people he'd like to invite to dinner: Albert Einstein, Werner Heisenberg, Mahatma Gandhi and Stephen Hawking

Favorite vice: "An occasional glass of wine."

Great read: *Cryptonomicon*, by Neal Stephenson

PHOTOS DARREN HIGGINS

> **“Thirty years ago, I could manage all the hardware myself. It’s gone from a one-man operation to a three-ring circus.**

“raw” information that our analysts take and look into. We have a T1 line to the Senate so they can file their reports securely and quickly.

After the data has been cleared by our analysts — and we have a 48-hour turnaround time — we post it on the public Web site.

Do you consider your hosted services to be cloud computing? No, because we have specific servers that run our site, and we own those servers. Savvis just manages them for us. It’s cloud computing only if I can connect and use a service with no regard to where that service may be emanating from. Savvis has talked to us about cloud computing, and that is very interesting to me. I can see it from a disaster recovery perspective. If I can contractually request services, and I get those services as specified in the contract in a secure manner, then that’s fabulous.

But the FEC doesn’t allow anything other than FEC operations on our systems. So I might have to look at a private cloud-computing model with only the FEC on it. That might be prohibitively expensive, though.

Tell us more about your Web portal. Who developed it? Who maintains it? The Web site has been around for many years. It came into being almost as soon as the Web was available, sometime in the mid- to late 1990s. The Web site has gone from a pretty standard noninteractive site to a much more robust site. A lot of that is due to Alec Palmer, our current CIO. He’s very Web-savvy, and he’s interested in putting as much data out to the public as he can. And he wants to put the data out there in more interesting ways than we have hitherto done.

Before, there were flat files, and it was harder to dig for that summary information you may have wanted. Alec’s the one who pushed for the map application — those beautiful bubbles on our home page. He’s assembled a tremendous staff of very talented programmers and enterprise architects and others. Savvis is hosting the Web site; they give us a secure environment to work that magic. But all the programming is done from the FEC.

How have IT operations changed in the 30 years you’ve been at the FEC? It’s become much more complex, and at the same time we’ve really reached out to provide more and different kinds of data to the public. Years ago, if you wanted to get information, you had to come to our office here in Washington to do research. Over the years, we developed a process so people could dial in over a modem and view reports; this was pre-Internet. Now it’s all done via the Web, and we’ve vastly expanded the ability for citizens to do queries about who’s getting what money and from where. You can really drill down into the details about which PACs or corporations are giving money to candidates, to see what the candidate really believes in.

This has required us to move from a single-tier database into a multitiered system. But the graphics are definitely much better than they were. And 30 years ago, I could manage all the hardware myself. It’s gone from a one-man operation to a three-ring circus — with a lot more knowledge and skills required.

When I first started at the FEC, the security implications were nowhere near what they are now. You just didn’t hear of anyone hacking into databases back then — it was a rare occurrence. Now we have to run virus protection software, configuration management software, firewalls and router rules, and intrusion detection/prevention. All of these are necessary to protect and ensure that all of the information we pump out there is accurate and not being defaced or changed by some miscreant.

What is Savvis’ role in security, and what is the internal role? Savvis monitors our network very closely. They run [intrusion detection] across the network and let us know if there’s been any attempted scanning or anything amiss on our servers or network. We run checks internally for issues that would be within the commission itself — an employee looking somewhere they shouldn’t, for example. We can detect that here.

Nothing’s happened recently, but you’re always having people scan your network. That’s why you have to monitor it so closely. It’s a sewer out there; there are thousands of viruses, so we have multilayered virus protection. When something comes into our mail router, it’s scanned for viruses, then it’s scanned again in software that Savvis uses, then it’s scanned again when the e-mail hits our internal systems.

We’ve been fortunate, but there’s a huge amount of effort in ensuring that nothing happens. Because once something does, it’s very difficult to regain the trust of the public. We have not had that happen, thank God.

— Interview by **Johanna Ambrosio**

OPINION

John D. Halamka

Less (Complexity) Is More (Flexibility)

WHENEVER I consider purchasing something for myself, I always think about the complexity it would add to my life. Buying more stuff can lead to short-term gratification, but also to long-term maintenance headaches.

The same can be said of information technology. In fact, complexity is pervasive in our industry.

A few years ago, I had dinner with some Microsoft executives and opined that the company should produce secure, reliable products with fewer features and lower cost. Who really wants an outline reformatted by Word's Outline Wizard? Why must we endure patches necessitated by too much code supporting too many seldom-used features? They responded that most people use 95% of the features in Office, adding that the average user wants new features over everything else. To make their point, they released Vista.

I have chosen to do battle with complexity. But there are several ways that complexity can crop up.

Every commercial software product we buy adds to the interfaces of our systems. All those interfaces make recovery from downtime more difficult and increase support costs. Recently, a clinician commented that one of our new purchases surprised her because it added complexity, fractured workflow and inconvenienced many users for the benefit of a few. That's what I want to avoid.

One tactic is to use the fewest vendors possible — one or two storage vendors, one desktop vendor, one network vendor and just a few app vendors. The more vendors, the greater the integration effort, the more burdensome the maintenance, and the higher the cost.

When we build software, users often plead for all sorts of bells and whistles. But for each new custom feature, we add maintenance costs, training requirements and potential bugs that could compromise stability and reliability. I've been involved in many development projects that became so complex that the software had to be rewritten to ensure usability. So my goal with in-house apps is to keep them simple. That also makes it easier to use them across the enterprise.

In IT, simplicity is often more reliable, more secure and more usable.

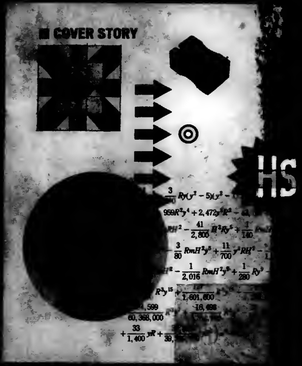
It's tempting to customize commercial packages as a way to get buy-in from stakeholders. Yet, in my decade as a CIO, I've found that stakeholders come and go, and when they leave, all the customizations they designed are often retired. In fact, many upgrade projects include retiring all customizations. Customization just adds complexity. And I've found that when users really understand customization's implications for workflow, cost and future upgrades, they're not so enthusiastic.

I've also realized that going with best-of-breed products can result in feature-rich systems that are too challenging to maintain and debug. For example, our e-mail system includes Exchange for general functions, Brightmail for spam protection, McAfee for virus protection, Tumbleweed for secure message transmission, Sendmail for SMTP gateways and more. We will be moving to an appliance from one vendor that consolidates spam filtering and security.

Some interesting ideas for removing complexity have popped up lately. People are adopting Gmail, Google Apps and Facebook as "good enough" productivity tools. They're adopting commodity hardware — clustered using basic Linux operating systems — instead of proprietary niche offerings. They're using software as a service on thin-client computers. Even Microsoft has embraced the concept of cloud computing, demonstrating a willingness to eliminate the complexity of its operating system and application environment.

In the world of IT, simplicity is often more reliable, more secure and more usable. Whenever I'm tempted to add complexity to address the needs of a few customers, I remind myself that less is more. As the programming language pioneer Alan Perlis said, "Fools ignore complexity. Pragmatists suffer it. Geniuses remove it." We should all strive to be geniuses! ■

John D. Halamka *is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, chair of the national Healthcare Information Technology Standards Panel and a practicing emergency physician. You can contact him at jhalamka@caregroup.harvard.edu.*



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Liberty High School
1972

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Most Likely To...

HOW DOES HIGH SCHOOL AFFECT YOUR LIFE? NINE IT LEADERS REFLECT ON THEIR GLORY DAYS.

BY MARY BRANDEL

IS THE CHILD father to the man? Or is the woman a reaction to the child she was? Maybe each of us is the result of a combination of straight lines and U-turns on our life's journey. We asked nine IT leaders to reflect on their high school selves and how their younger personas affected the adults they've become and the careers they've forged. Their insights are surprising, funny, tender and wise.

Bogdan Butoi

CTO, Animas Corp., Computer Sciences High School

CLASS OF 1990

Bucharest, Romania

My high school self: I was a combination of a rebel and a nerd. I grew up in Romania, and I rebelled against some of the things we were forced to learn in high school that didn't apply to real life. For instance, I was once thrown out of an economics class because I told the professor that capital gains were superior to the communist belief in value gains. I told her I preferred to have extra money than extra products on the shelf.

At the same time, I was always

writing code in the computer lab between classes. There was a large group of us, and we even spent summers at school working on the computers. Both my parents were in technology, so I got exposed at an early age.

Others would have voted me most likely to . . . : Become president or go to jail.

How my high school persona helped form the person I am today: While the rebel part calmed down a little bit, it still helps me challenge the status quo and the processes people take for granted. I always challenge people when they say, "This is how you have to do it."

At the same time, I've learned to approach people in a politically correct way, especially when I sense their blood pressure going up. If I could go back to that economics class, I'd know how to rephrase my arguments without being thrown out.

Advice to young people who view themselves as I did: Don't get molded by the so-called standard. We all have qualities from early childhood that sometimes we try to change because we feel we'll be labeled or rejected by society. I see a lot of students who think, "I shouldn't do this because it's not cool," so they try to live two lives between the image they project and what they really are. In the long term, having this dual personality hurts.

[illegible]

Senior vice president and CIO, Ryder System Inc.

[illegible]

Liberty High School
Youngstown, Ohio

My high school self: I was in two categories — I was definitely a jock, but at the same time, I was in the audiovisual club. Nobody even thought about computers, but we did have AV, which was the closest you could get to technology.

Others would have voted me most likely to . . . : Go on cruise control. I was definitely an underperformer, and I didn't take a book home with me my whole senior year of high school but still got a B average. There was nothing outside of sports that I had passion for.

How my high school persona helped form the person I am today: I grew up in a family where we were always told we'd go to college. It was 1972, when there was all the craziness with Vietnam. So I cruised through my undergrad years without much interest in anything, but I ended up graduating, and my future father-in-law told me to get an MBA. I was a biophysics major, so the MBA program was easy compared to that. I went on from there into a doctoral program. Once I was exposed to technology, I really enjoyed it — I'd finally found something I liked, and I flourished once I got into it.

Advice to young people who view themselves as I did: Stay in school, get good grades, and go to college if you can afford it. And do what you like; if you hate your job, you'll be unhappy. There's a huge variety of roles in technology. You don't have to be a programmer.

[illegible]

Vice president and CIO, The George Washington University

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LaSalle High School
Cumberland, Md.

My high school self: I always worked after school, so I couldn't practice on a regular sports team. But I was always involved in scouting, all the way to Eagle Scout, and then to the national scout honors and service society. My outdoor time was spent with the scouts program – hunting, fishing, camping – and the woods were literally my backyard. In those days, scouting led to getting involved in leadership programs and learning to tackle new challenges.

Others would have voted me most likely to . . . : Argue before the Supreme Court. I had a reputation – both in class and with my parents – for debating everything, and I was involved in student government.

How my high school persona helped form the person I am today: I went to a Christian Brothers high school where we were encouraged to question everything, whether the subject was literature, science or religion. I was extroverted anyway, and I went to a school that helped drive it further. It formed the basic core of my personality, not to question things in a nasty sense but in a scientific, "Why does it have to be that way?" approach.

Someone who's willing to take on new things and challenge the status quo makes a good CIO, because you need to question things – like why are we going with Linux or trying voice over IP. You need to question assumptions not to be obnoxious but to see whether there are holes in the reasoning.

Advice to young people who view themselves as I did: Concentrate on working in teams. Very little these days gets done solo, whether it's research or engineering. You have to be able to let go and not always be in charge of your own fate.

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Kevin Bott

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Ron Bonig

Vice president and CIO, The George Washington University
CLASS OF 1965
LaSalle High School
Cumberland, Md.

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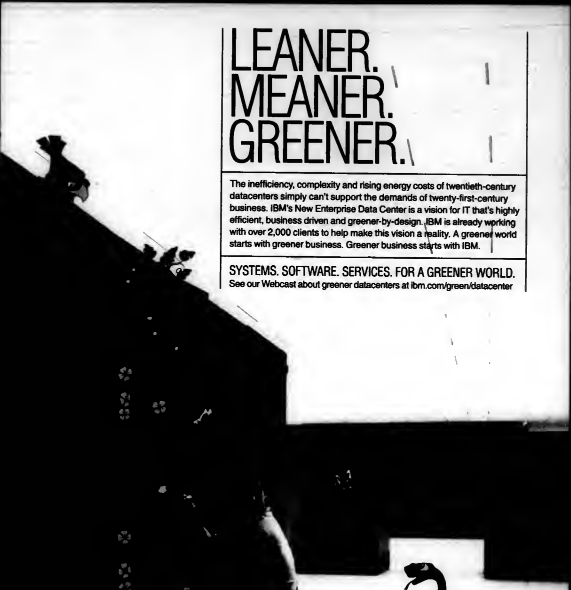

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Mary Leonardo Patry

Former vice president, IT transformation, American Red Cross
CLASS OF 1971
West High School, Rockford, Ill.

My high school self: I was considered somewhat offbeat. I was a painter and a sculptor, so I always had some smudge of paint or wood chip somewhere on my clothing. At the same time, I was also analytical; I tended to correlate things that others might not have, and my art tended toward geometric or Cubist-style paintings and works that had perspective. I was a Picasso, Escher and Van Gogh fan, never a Monet type. I got kicked out of typing because I goofed around too much. It bored me to tears! I literally talked my way into getting a passing grade by doing some graphics work for the teacher. I guess that shows I had some negotiation skills.

Others would have voted me most likely to . . . : Run an art commune.

How my high school persona helped form the person I am today: I've always had the tendency to think out of the box and take advantage of my creativity to solve problems. In fact, one reason I got into IT was because I was told I couldn't. After high school, I worked at a local manufacturing firm, and someone asked if I'd like to work in data processing. My first day on the job, the supervisor said, "I'm not taking her; she's a girl." As a result, I really had to prove myself. So I made a game out of how to improve the batch processes and get more jobs through. Later, I was in charge of figuring out what was wrong with code and fixing it. I definitely needed to use my creative and analytical skills because there was very little guidance.

As part of my job today, I have users walk me through their experience, and that really helps me visualize how it's used and what should change. I still see myself as an artist more than an IT person.

Advice to young people who view themselves as I did: You don't have to be a geek or into gizmos to have a rich, rewarding career in technology. In my early years, I purposely hired music majors because of the right brain/left brain interconnection. There are such wonderful rewards in IT, both financially as well as creatively.

Karen Graham

Vice president and CIO, Cooper University Hospital
CLASS OF 1982
Cherry Hill West High School
Cherry Hill, N.J.

My high school self: Is there a category for "mutt"? I had friends in all different cliques, due to my varied interests, which included sports, ceramics and stage crew.

Others would have voted me most likely to . . . : Travel the world.

How my high school persona helped form the person I am today: Upon graduating from high school, I was unsure as to whether college was the right choice for me at that time. While shoe shopping in Haddonfield, N.J., I saw a sign that said, "See the world and earn your degree," so I enlisted in the Navy and, at age 19, found myself living in Sicily. Needless to say, I did not buy the shoes that I was looking for.

Advice for young people who view themselves as I did: Do what you love and follow your passion, not the crowd.

Douglas Menefee

CIO, The Schumacher Group
CLASS OF 1987
Lafayette High School
Lafayette, La.

My high school self: I was a 90-pound, nerdy metalhead. I struggled greatly in high school and had a small group of great friends who helped me get through the days of structured education. To paraphrase Pink Floyd, I was "a lost soul swimming in a fish bowl."

As a dyslexic, I struggled through high school and was greatly embarrassed by scoring a 17 on the ACT. My teachers passed me because of my "potential." I was a C student on a good day when it came to taking written tests.

Others would have voted me most likely to . . . : Have the cops show up at my parties. (Don't tell my mom.)

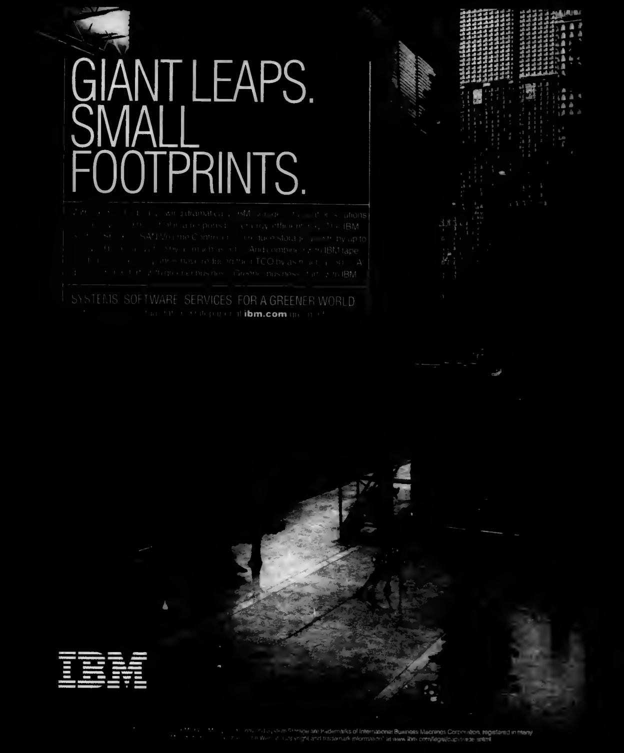
How my high school persona helped form the person I am today: One of the things I reflect the most on about high school is that I had long hair at a time when "preppy" was in, and I was raised in a small, conservative town that just didn't get long hair. This rebellious part of my life helped me recognize that I needed to pursue what was right for me, not others.

After high school, I flunked out of a semester of college, worked on an oil rig for three months, then joined the military. Needless to say, I lost the long hair. I became a flight medic and was activated for Desert Storm. While in Saudi Arabia, I had a series of SCUD missiles shot down over my head. It was then and there that I had a life-changing moment and made a commitment to myself to pursue the things that inspired me and to focus on personal leadership development.

Because of my dyslexia, computers became my salvation. I type faster than I write, and spell check helps with my disability, and the virtual world empowered me to connect with thousands of people.

Advice for young people who view themselves as I did: You get to reinvent yourself hundreds of times throughout your life. Focus on your inner self, never let anyone tell you that you can't accomplish something, and cast your net wide when it comes to pursuing a career. Get involved with Boys & Girls Clubs of America to be exposed to diversity, leadership and healthy choices.

More profiles, page 30



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Mike Collison

Director of IS operations, Auto Warehousing Co.
CLASS OF 1986
Jefferson High School
Lafayette, Ind.

My high school self: Definitely a nerd and a square peg. I didn't fit into any group. I was a serious introvert, so while I had two really good friends, I didn't make new friends easily or quickly. In my junior year, they started offering PC-based computer courses, and I jumped into those. My parents got me a Commodore 64, and I could do rudimentary programming on it, as well as make my own adventure games and rudimentary graphics, through self-teaching.

I discovered I had a knack for it. But I wasn't sure that was where I wanted to go, because I was just cruising through high school. My dad finally asked me, with a sense of frustration, what I was going to do with my life, and to placate him, I said I liked computers.

Others would have voted me most likely to . . . : Not know what I wanted out of life.

How my high school persona helped form the person I am today: I still have a deep love for video games, and I still have introvert tendencies. I have to force myself to do things that make me uncomfortable on an almost daily basis. But I'm a completely different person from what I was then. I ended up in situations and jobs that caused me to get way outside my comfort zone repeatedly. The more I was thrust into those situations, the farther I got from the person I was in high school. Doing the tasks I do now would have shut me down back then. There are things – public speaking, for one – that still terrify me, but I end up muscling through those things and move forward.

Advice for young people who view themselves as I did: Think about what you want out of life and try the best you can to get there. You need to overcome any fear you have of going out and doing it. A lot of kids today are showered with things their parents didn't have, so they're very comfortable. But you can't wait for things to just fall in your lap.

Sujit Sinha

Senior director, IT strategy and architecture, Motorola Inc.
CLASS OF 1979
University Breckinridge School (part of Morehead State University)
Morehead, Ky.

My high school self: My school was small, with just 500 people, kindergarten through 12th grade. It was part of a university, and our teachers were often Ph.D.s or actual college professors.

I would probably fall into the nerd/geek category, but I did a lot of sports too, so I guess I was a nerd/jock. I played tennis and was one of the top players in the state.

From another viewpoint, this was during the days of "the preppy," and we were into nonconformity, so you could almost say I was also a rebel. Then we realized we were conforming by being nonconformists, so we called ourselves "free-conformists." It was a fun school.

I also liked physics and math a lot and got some awards in those areas. In one English literature course, I had to do a book report on H.G. Wells, and I wrote it from a technology perspective on whether the technology described would actually work today.

Others would have voted me most likely to . . . : Become a nuclear physicist and glow in the dark.

How my high school persona helped form the person I am today: I'm now in charge of IT architecture, which is the geekiest part of IT, even though I'm not the most techie IT person. I did mechanical engineering for my undergraduate degree and also got a master's in mechanical engineering.

I'm very interested in how things work. With physics, you can throw something in the air and watch how it lands and describe the equation. But software doesn't follow the laws of Newtonian physics. It can work one day and not the next.

Advice for young people who view themselves as I did: To paraphrase Winston Churchill, it's not the beginning of the end but the end of the beginning. You'll learn there's a lot you can do, and you can make career changes. I've made quite a few. So decide what you want to for now, because things will change over time. You always have to be adaptable.

Eberhard Haag

Senior vice president and general manager, Amadeus IT Group SA
CLASS OF 1977
University of Stuttgart

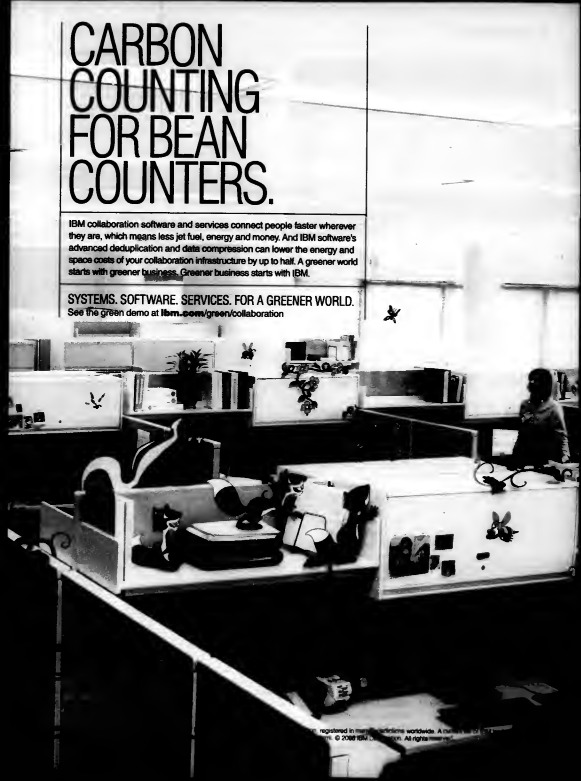
My high school self: I had a lot of friends and was very active in sports. I was also very interested in everything related to math and mathematical technique. I was not so interested in languages or humanistic stuff. I moved very quickly to the mathematics high school, where we had special training in math and physics.

Others would have voted me most likely to . . . : Keep playing sports and be a party animal.

How my high school persona helped form the person I am today: It was a fairly straight path. When I got to university, I studied informatics and business economics. It was clear that I needed to study both to see the influence that technology can bring to business. But I also tried to combine it with having a huge amount of fun. I was the only student to have a key to the computer center, so I was always there to open the door, and I'd help people finish their stuff and look for mistakes they'd made. I was well known on campus, so when there was a party, I was always invited.

Over summer breaks and during vacation, I always tried to take a job somewhere, and I would use some of the money to take a vacation and some for the next season at school. This also helped me understand how companies work, because you're always working on very low budget.

Advice to young people who view themselves as I did: Enjoy the time in high school. It's when you can enjoy a lot of free time and live your dreams. ■



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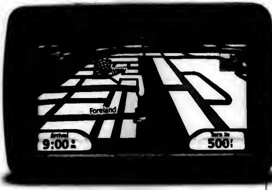

Global Positioning Systems

Sometimes technology is indistinguishable from magic. By Russell Kay

LIKE MANY people, I've come to take for granted the availability of navigation systems in cars and handheld devices based on the Global Positioning System. But it was all abstract until I recently acquired a modern GPS myself. My reaction reminded me of Arthur C. Clarke's Third Law: "Any sufficiently advanced technology is indistinguishable from magic."

HOW THE MAGIC WORKS

The basis for GPS is 29 satellites orbiting the Earth 12,000 miles up; five of them are spares. The U.S. military began launching them in 1978, and it took until 1994 to get 24 in orbit — enough to calculate a position anywhere in the world. These 2,000- to 4,000-pound satellites are 17 feet wide with their solar panels extended. They traverse six separate orbits, and each orbit has four satellites chasing one another.

The satellites are positioned so that any ground-based GPS receiver can always "see" — receive data from — at least four of them. A master control station in Colorado Springs and five unstaffed monitor stations around the world track each satellite's orbit precisely. If they find a satellite out of position, they command its booster rockets to nudge it back on track.

Using just a 50-watt radio transmitter, each orbiting GPS satellite continuously broadcasts signals containing a pseudorandom code that provides its identity and position and the time (maintained by an atomic clock). When data from at least three satellites is available (four is much better, and six or seven provide even more accurate results), a GPS receiver uses relatively simple geometric calculations to determine its own latitude, longitude and altitude. Comparing successive readings against time, it can also calculate ground speed and direction. The GPS receiver uses the satellite data to reset its own clock and saves the data for use in calculating position. Newer GPS receivers use a multichannel design in which five to 12 receiver circuits operate simultaneously, each able to lock onto a different satellite.

BUILT-IN ERRORS

GPS data is never totally accurate. Radio waves travel at the speed of light (186,000 miles/sec.) in a vacuum, but the Earth's atmosphere slows them down. Further delays occur when signals bounce off buildings, hills and trees. Even a millisecond discrepancy can create a 300-meter positioning error. Moreover, until 2000, the public GPS was purposely made less accurate than it could be: Because GPS was originally designed for military use and the U.S. government didn't want enemy forces to have position information as good as that of the U.S. military, it introduced deliberate errors into the system. This process resulted in GPS calculations that could be off by 100 meters.

These deliberate errors are no longer being introduced, but overcoming them turned out to be quite simple in practice. Differential GPS (DGPS) corrects for measurement errors by comparing the GPS positions recorded at designated reference stations with the accurately known positions (determined through careful surveys) of those stations. DGPS stations broadcast any error factors they uncover to all GPS receivers within range, and the receivers use the data to correct their calculations, resulting in accuracy within a yard or two.

Definition

The Global Positioning System (GPS) uses a network of satellites to provide electronic signals that enable a receiver to accurately determine its position anywhere on Earth.

USING GPS DATA

With the GPS providing position, altitude and time, today's miniaturized navigation devices compare the data against a stored geographic database (such as North America) and then calculate routes, provide directions, correct for instructions that users ignore or get wrong, and highlight nearby points of interest. This programming, along with the accompanying graphical displays, are marvels of compact technology that complete the illusion of magic. ■

Kay *is a* Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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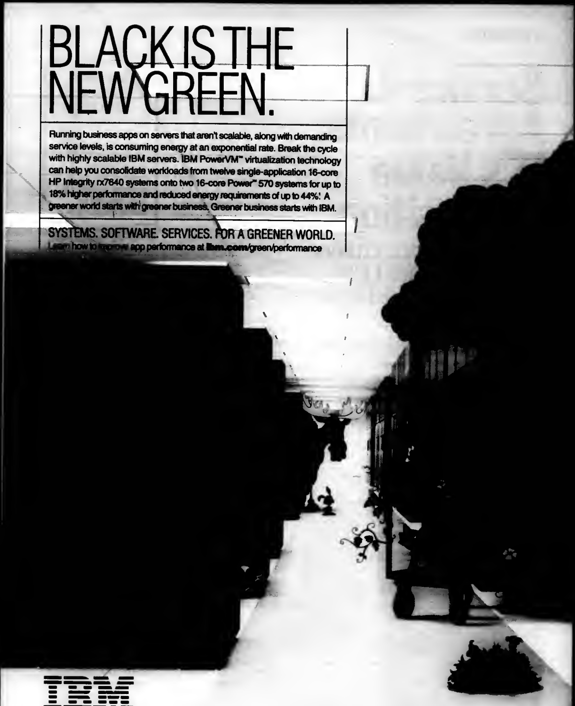

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Service-Level Agreements: IT's Value Proposition

An SLA is your chance to demonstrate IT's worth to the business. Here's how to get it right. **By Bob Anderson**

OVER A career in information technology spanning multiple decades, I have observed that many IT organizations have focused process improvement and measurement almost exclusively on software development projects.

This is understandable, given the business-critical nature and costs of large software development projects. But in reality, IT support services consume most of the IT budget, and they also require the most direct and continuous interaction with business customers.

IT organizations must demonstrate the value of IT support services to business customers, and a primary way of doing this is through service-level agreements. SLAs help IT show value by clearly defining the service responsibilities of the IT organization that is delivering the services and the performance expectations of the business customer receiving the service.

One of the most difficult tasks in developing an SLA is deciding what to include. The following sample SLA structure provides a good starting point.

Introduction: This identifies the service, the IT organization delivering that service and the business customer receiving it.

EXAMPLES:

- Infrastructure support for a shipping warehouse.
- Software application support for the payroll staff.

Description of services: This characterizes the services to be provided, the types of work to be performed and the parameters of service delivery, including the following:

- The types of work that are part of the service (maintenance, enhancement, repair, mechanical support).
- The time required for different types and levels of service.
- The service contact process and detailed information for reaching the help desk or any single point of contact for support services.

Description of responsibilities: This delineates responsibilities of both the IT service provider and the customer, including shared responsibilities.

Operational parameters: These may affect service performance and therefore must be defined and monitored.

EXAMPLES:

- Maximum number of concurrent online users.
- Peak number of transactions per hour.
- Maximum number of concurrent user requests.

If operational parameters expand beyond the control of the service provider, or if users of the service exceed the limits of specified operational parameters, then the SLA may need to be renegotiated.

Service-level goals: These are the performance metrics that the customer expects for specific services being delivered. SLGs are useless unless actual performance data is collected. The service being delivered will dictate the type and method of data collection.

It is important to differentiate between goals that are equipment-related and service-level goals that are people- and work-related.

EXAMPLES:

- Equipment SLG: 99% network availability 24/7.
- People and work SLG: critical incidents resolved within two hours.

OPTIONAL CARROTS AND STICKS

At the discretion of both parties, service-level agreements may include financial incentives for exceeding service goals, penalties for missing goals, or both.

Service-improvement goals: These establish the required degree and rate of improvement for a specific SLG over time. An SIG requires that a performance trend be calculated over a specified period of time in addition to specific SLG data getting captured. This trend indicates the rate of improvement and whether the improvement goal has been achieved.

Service-performance reporting: This states IT's commitment to delivering reports to the business customer on a scheduled basis. The reports detail actual services delivered and actual levels of performance compared to the commitments stated within the SLA.

Sign-off: Signature lines and dates for authorized representatives of the IT organization delivering the service and the business customer receiving the service.

The hardest part of developing an SLA may be getting started. I hope this framework will help you begin to demonstrate IT's value to your customers. ■

Anderson *is director of process development and quality assurance at Computer Aid Inc. Contact him at bob_anderson@compaid.com.*

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■ SECURITY MANAGER'S JOURNAL | MATHIAS THURMAN

When Is a Patch Not Really a Patch?

Answer: When the **patches are dutifully installed** but the **servers aren't rebooted** — for more than two years.

Trouble Ticket

ISSUE: Over the years, hundreds of servers have been patched but never rebooted, so the patches haven't actually taken effect.

ACTION PLAN: Take them all down on a Friday evening and keep our fingers crossed that no applications break.

I MADE a disconcerting discovery last month when Microsoft released a security patch outside of its regular monthly routine. How disconcerting was it? I'm talking about the discovery that a lot of the patching we've done to our more than 450 servers has never gone into effect.

Let me give you the background.

Each quarter, I present metrics to our CIO, including the percentage of servers that are compliant with the latest recommended critical security patches. Our Windows desktop and server team meets once a month to review the latest Microsoft patches and decide which ones we should apply based upon criteria we use to classify the threats. Patches we choose to apply are pushed to our servers and desktops, and then I check our Microsoft Systems Management Server to gather the information for the CIO.

I'd always assumed that when the SMS reported that a particular server had been patched, I could run with that information. Nope; there's a gotcha.

If you don't reboot a Windows server after a patch is applied, the patch doesn't take effect, but SMS doesn't notice that failure to reboot. This insistence on rebooting is one of the things I dislike about Windows. In the Unix world, all that's usually required is that a particular process be restarted.

When that so-called out-of-band patch came up, I attended a meeting to discuss whether it would be necessary to install it on all of our servers and 8,000 desktops. From what I had read ahead of the meeting, I was convinced that it was absolutely necessary. The patch fixes a vulnerability in the "server service," which lets Windows communicate with network devices. A remote procedure call could cause a Windows system to execute arbitrary code, and reports were already circulating that exploit code and a worm had been developed. In other words, this was one vulnerability we couldn't afford to ignore.

■ The IT managers were freaking out that they would have to reboot over 450 servers.

NEVER ASSUME . . .

It was during that meeting that I made my disconcerting discovery. The IT managers were freaking out that they would have to reboot over 450 servers. My first reaction to their concern was confusion. Making assumptions can get you into trouble, and my assumption that the servers were routinely rebooted after patches were installed certainly fit the bill. I found out, in fact, that many of our servers hadn't been rebooted in over two years. They had more than 24 months' worth of patches installed on them that were doing us no good.

I also came to find out that there was no comprehensive list of servers with asset-identification data, such as the applications running on each server, points of contact, and whether the server was for production or development. As a matter of fact, about a quarter of the servers were in an unknown state, meaning no one knew what their purpose was. Scary. This is what happens when you don't have a sound configuration and asset management program in place. We spent the next several days and a large chunk of the IT organization's time trying to figure this out, and still we were unable to identify about 15% of the servers.

As for that out-of-band patch, we decided to push it to the servers and then reboot all of them on a Friday evening. As luck would have it, there were no major issues, and all the servers came back online, patched and apparently running smoothly. However, there may be some fallout over the next few weeks as applications that aren't frequently used start to show the effects of this big patch implementation.

JOIN IN
To join in the discussions about security, go to **computerworld.com/blogs/security**

Oh, and I'm happy to report that the new version of SMS, called System Center Configuration Manager, can report on whether a server is awaiting reboot. ■

*This week's journal is written by a real security manager, "**Mathias Thurman,**" whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

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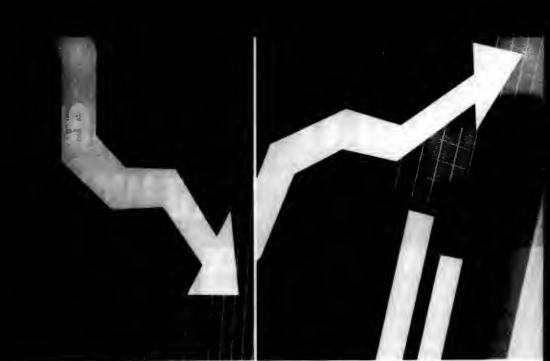

CAREERS

Wall Street's Losses May Be Computer Science's Gain

Talent migrates from IT to hedge funds and back again.

BY PATRICK THIBODEAU AND TODD R. WEISS

THE COLLAPSE of Wall Street may help make computer science and other IT careers attractive to students who abandoned those fields in droves after the dot-com bust of 2001.

William Dally, chairman of the computer science department at Stanford University, says that for the past several years, he has watched some students interested in technology go into banking and finance because those fields could be more lucrative.

"Many thought they could make more money in hedge funds," Dally says. He notes that students are returning to computer science because

Continued on page 40

YEAR	TOTAL
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Continued from page 38

they like the field and not because it will necessarily make them rich.

John Gallaugher, associate professor of information systems in the Carroll School of Management at Boston College, says he's already seeing a shift in student interest. "Students have commented to me and written on their course wikis that they're considering changing from finance [majors], both based on the appeal of IS and concern over availability of finance jobs" in the future, he says.

After the dot-com bust, computer science enrollments began declining. The number of bachelor's degrees in computer science awarded at 170 Ph.D.-granting institutions reached a low of 8,021 in 2007, down from 14,185 in the 2003-2004 academic year, according to the Computing Research Association in Washington.

JOB TITLE
PERCENTAGE INCREASE

"Current economic conditions seem to impact [students' choice of majors] — that has been true for computer science," says Jay Vegso, a CRA analyst. "Students who are now choosing majors might be looking for safer alternatives," he adds, and IT may be among them.

CHANGING TIMES

The dot-com era was a wonderful time to be young, computer-savvy and in search of stock-option riches. Wall Street poured billions of dollars into hundreds of companies that were making little or no money.

For instance, Webvan Group Inc., a grocery delivery firm in Foster City, Calif., that was founded in 1997, had so much money that it bought a rival, HomeGrocer, in 2000 for $1.2 billion in stock. Webvan ceased operations and filed for Chapter 11 bankruptcy protection in 2001.

If the dot-com meltdown wasn't enough, offshore outsourcing also scared students away from technology.

The terra firma for IT vertigo.

In 2004, Carly Fiorina, then CEO of Hewlett-Packard Co., summed up the offshore trend this way: "There is no job that is America's God-given right anymore." Fiorina recently served as an adviser to Republican Sen. John McCain in his bid for the White House.

Today, companies are suffering from a shortage of technology professionals, and baby boomer retirements will only add to the problem. "The pipeline is inadequate for IT professionals," says Jerry Luftman, who is involved in academics and business as associate dean at Stevens Institute of Technology's Howe School of Technology Management in Hoboken, N.J. He is also vice president for academic affairs at the Society for Information Management in Chicago.

> **The pipeline is inadequate for IT professionals.**

The big difference between today and computer science's heyday in the late 1990s is the type of entry-level IT employee that businesses need, Luftman says. Technical skills are still important, but businesses also want to hire recent graduates with management and industry training, as well as strong communication, marketing and negotiation skills, he explains.

According to the U.S. Bureau of Labor Statistics, IT is among the fields that are seeing the fastest increases in the number of jobs. On the top of the BLS's list of fast-growing job titles is network systems and data communications analyst. The agency's projections call for the number of those jobs to grow from 262,000 in 2006 to 402,000 in 2016. Meanwhile, the number of jobs in the "computer software engineers, applications" category is expected to increase from 507,000 to 733,000, while the number of database administrators will rise from 119,000 to 154,000.

Randal Bryant, dean of the School of Computer Science at Carnegie Mellon University in Pittsburgh, says his school saw student applications drop from a peak of 3,200 in 2001 at the end of the dot-com boom to a low of 1,700.

But the situation has been turning around, with 2,300 applications coming in last year, he says.

Bryant says he expects the troubles on Wall Street to influence some students to switch majors from business to other fields, including computer science. But he urges caution.

"I like to tell students that if you make your career choice that quickly based on what is hottest this month, you're going to be graduating in four years, and that field may not be hot anymore," Bryant says. "I tell them to major in something they like and not what's a likely short-term fluctuation in the job market.

"Our peak at the dot-com [period] included people in computer science who had no particular aptitude in it," he adds. "But they thought they'd get rich." ■

All those competing information requests can make you dizzy.

The CEO needs to know P&L performance by business unit. The CFO needs to know he's meeting compliance regulations. And a dozen business managers need to know how to increase output but not staff.

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■ OPINION

Paul Glen

Fear: The Great De-motivator

WITH THE job market tanking, vendors laying off staff, and IT departments cutting contractors, employees and projects, IT managers, at best, are going to be under a lot of pressure to improve productivity.

In less functional corporate cultures, managers will be under pressure to do something less positive than improve productivity. They'll simply be told to cut costs regardless of the effects on the organization. So when you, as a manager, get the productivity speech or when you, as an IT professional, hear your manager talk about productivity, be happy, not upset. It could be worse. You could be hearing panicked conversations about throwing people and projects overboard.

But it's not always obvious that a given conversation is about productivity. You'll hear productivity improvement discussed in a number of different ways:

- "We want to do more with less."
- "We need to demonstrate a better return on investment."
- "We need to demonstrate our value to avoid further budget cuts."

Combine this pressure to improve productivity with the deteriorating job market, and managers may be tempted to try to use threats of layoffs and firings to frighten their staffs into doing better. They might not come right out and say it, but they will be tempted to allow rumors to run wild, unchecked by reassurances. They may feel that a bit of fear and anxiety brought on by concerns about career and financial security is just what the efficiency expert would order to improve productivity.

But I don't think it works that way. Ethical questions aside, fear is just not an effective strategy when it comes to motivating creative knowledge workers.

If you are the overseer on a road-building project and you want people to dig faster, carry more rocks or smooth cement faster, fear may be a decent motivator in the short term, as it was for the supervisors of chain gangs. As long as you can instill fear in the hearts of the workers without instigating a rebellion, you may well get higher productivity than you would by more humane means.

■ Managers may be tempted to try to use threats of layoffs and firings to frighten their staffs into doing better.

But just because fear may be effective when demanding higher productivity from people doing physical labor, that doesn't mean it works on people doing intellectual work, especially those doing creative intellectual work.

Think about it. Creative work requires mental and emotional engagement. To do it well, people need to focus their minds on their work. Specifically, creative technical professionals need to do two things really well.

First, they need to formulate questions. They need to use their observational powers, their business relationships, their understanding of the business and their analytical skills to figure out which problems or opportunities should be addressed with technology.

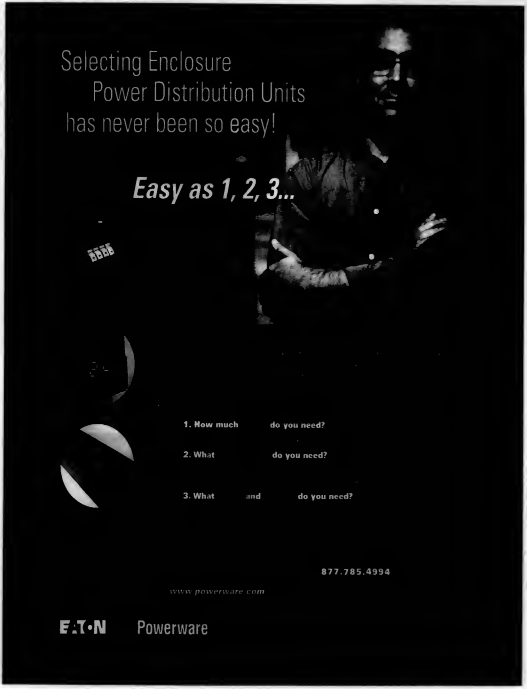
Then they need to create solutions to the problems that they have found.

This is no small task. Do not underestimate the difficulty of perceiving reality and imagining ways to change it for the better.

People who are busy worrying about whether they are going to be able to pay next month's mortgage are not going to be completely and unreservedly engaged in business problems. Personal survival takes precedence. If I'm worrying about whether my family will have health insurance next month, I'm not going to be able to shut out that question. I'm going to be focusing on that problem rather than the one you're paying me to work on.

So skip fear as a motivator. Unless your IT group is engaged solely in lugging PCs around the office, fear is only going to decrease productivity. As much as possible, give people a sense of security so that they can focus on their work. That's what really improves productivity. ■

Paul Glen *is the founder of the GeekLeaders.com Web community and author of the award-winning book* Leading Geeks: How to Manage and Lead People Who Deliver Technology *(Jossey-Bass, 2003). Contact him at info@paulglen.com.*



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Career Watch

■ Q&A

John Baschab

The **senior vice president of management services** at technology services provider Technisource discusses the **types of IT skills being sought** by his company's midmarket clients.

What's the IT recruitment landscape like? The recruitment market is still strong. It feels like it's stronger than the overall economy. From 2001 to 2003, there was a little bit of a logjam [in labor demand] when IT spending had gone down. Around 2004-2005, spending began to pick up to address initiatives that had been put on hold. Those projects have since been completed, but now there's a second wave of investments around areas like security, how to get costs down in the data center, etc.

How has this translated in terms of the types of IT skills that are in top demand? There are a couple of things that are important right now. One is BI, including data architects, people who know how to operate the tools like a portal or Crystal Reports or Cognos. And business analysts who can train the end users on what the BI tools can actually do.

The second area is security. It's similar to BI, where there are a number of subskills that IT specialists need to possess – not things that you can traditionally find in one person – like network security, operating system security, database security, application security and physical security around the data center.

How difficult is it to find people with these skills? They are definitely findable. They are midcareer professionals for the most part, people with three to 10 years of IT experience. The hardest area to recruit for is this business analyst position. Evaluating how good someone is at evaluating requirements and translating them effectively is more difficult to measure and thus more difficult to find.

– THOMAS HOFFMAN

PAGE COMPILED BY JAMIE ECKLE

Getting to Know You

More than [illegible], the people who [illegible] more [illegible] survey, [illegible] up from [illegible] earlier. What are [illegible]

On the negative side, they are interested in seeing whether a candidate has:

- Lied about qualifications.
- Revealed links to criminal behavior.
- Posted information about drinking or using drugs.
- Posted provocative or inappropriate photographs or information.
- Bad-mouthed previous employers or co-workers.
- Used discriminatory remarks related to race, gender, religion, etc.
- Used an unprofessional screen name.
- Shared confidential information from previous employers.

On the positive side, things that can help a candidate get hired include:

- Support for claims about qualifications.
- Evidence of strong communication skills.
- Signs that the candidate would be a good fit with the company's culture.
- A professional image.
- Favorable references posted by others.
- A wide range of interests.
- Awards and accolades.
- A creative profile.

SOURCE CAREERBUILDER COM ONLINE SURVEY OF 3 169 HIRING MANAGERS AND HUMAN RESOURCES PROFESSIONALS SEPTEMBER 2008

Money

21% Percentage of people who earn more than $100,000 annually but say they live paycheck to paycheck, according to an online survey. For all workers, the figure was 47%. The survey found that men are more likely than women to put money aside from each paycheck.

Maybe that's why half (51%) of the 557 U.S. workers responding to a Gallup telephone survey in August said that they think they're underpaid. Even among those making $75,000 or more, 38% said they felt they deserved more. Three percent of the respondents said they felt they were overpaid. CEOs of investment banks, perhaps?

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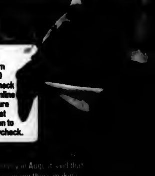
SOURCE: CAREERBUILDER.COM ONLINE SURVEY OF 3,169 HIRING MANAGERS AND HUMAN RESOURCES PROFESSIONALS, SEPTEMBER 2008

Money



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SharkTank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Zzzzzzzap!

Frequent-traveler IT pilot fish is at his desk filling out expense reports when he hears a desktop support tech across the way begin swearing loudly. "It seems he had returned a motherboard to the manufacturer as defective, and the manufacturer sent it back stating that the board passed inspection. He yelled, '@#$%! it, when I say a board is bad, it's bad!' With that, this tech reached in a duffle bag and pulled out a large stun gun and zapped the entire motherboard. When satisfied with his work, he repackaged the board and added a note to the box that read: 'Please re-evaluate this board; it failed testing here.' "

We All Have to Make Sacrifices

This IT shop spends a long time training call-center staff to use new software – including careful instructions *not* to use a particular key. "Over 100 users were successfully trained and used the software with no issues," says a pilot fish there. "But virtually every day, we got a call about this one user who had pressed the key we told everybody not to use. In the end, his manager built a keyboard template for his computer with an upturned thumbtack on the key he shouldn't use. Result: We no longer got any calls from that user. However, he was off for two weeks with a septic finger."

Problem Solved

It's the old story: This small company's servers are mysteriously rebooting at night, and sysadmin pilot fish can't figure out what's wrong from the logs, so he decides to camp out in the server room. Around 8 p.m., he sees a cleaning woman plug her vacuum cleaner into the same outlet as the servers and turn it on – and the servers reboot. "Next morning, I went to the store and bought some plastic baby-protection plugs to go into the outlets and printed a sticker that said 'Do not use.' It cost the company $1.25, and we never had a problem after that."

Fully Qualified

User stops at this pilot fish's desk to complain that his mouse and keyboard don't work. "Knowing that several people, including him, had just swapped desks and moved their own computers, I told him that he must have plugged the keyboard and mouse into the wrong ports," fish says. User's reply: "I'm an *engineer*. I think I'm more than capable of hooking up a computer." So fish drops what he's working on and accompanies the *engineer* back to his desk, where fish swaps the keyboard and mouse connectors and reboots the PC – and suddenly, the keyboard and mouse work. Says fish, "As we stood looking at each other, I asked him, 'Does this mean I'm qualified to engineer something?' "

■ *Well, you're qualified to send me your true tale of IT life at sharky@computerworld.com. You'll snag a snazzy Shark shirt if I use it.*

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■ FRANKLY SPEAKING

Frank Hayes

Gadget Season

FINALLY, THERE'S a silver lining in the ever-darker economic cloud: For once, corporate IT people are facing a gadget season in which we can honestly tell users, "I'm sorry, but we can't support corporate use of your new gadget. This year, we simply can't afford it."

This year, they'll believe us. But we shouldn't stop there.

After all, we know it's a dodge. We can never really afford to support the gadgets that start arriving every year about this time. Some of them end up in users' hands as holiday gifts, some because users can't resist getting them for themselves. They bring them to us, figuring that a new smart phone or e-mail device must have some business use.

And many gadgets *can* be useful in business — after a big investment in hardening security, tuning functionality and testing, testing, testing. But even in a good year, we can't afford to do all that for every gadget. And the makers of relatively inexpensive, consumer-level gadgets won't do it for us.

As a result, there's only a short list of things we can OK for business use: BlackBerries, iPhones, Treos. That doesn't make users happy. And unhappy users will often try to use their new gadgets on the job anyway.

That's why, even though we have a great excuse this year for curtailing gadget support, we shouldn't stop at just saying no, or even explaining why.

We should offer alternatives. And suggestions. And maybe even bend the rules a bit.

Look, some gadgets really are just toys. But that's how we originally viewed PCs and Wi-Fi, remember? The ones that will eventually be useful are pretty much indistinguishable from the junk.

And the easiest way to sort through the gadgets is to let users do the real testing.

■ Look, some gadgets really are just toys. But that's how we originally viewed PCs and Wi-Fi, remember?

So when they bring in a Peek, that new $100 wireless e-mail device, and ask why a BlackBerry gets the nod but not *their* gadget, start by putting on a long face, sighing deeply and explaining that the user's new gizmo doesn't have a BlackBerry's security or ability to work with Exchange.

Then add: "But you know, you can still use it for your personal e-mail, and I'd appreciate it if you'd keep us updated on how it works. Once there's money in the budget again, this might be worth another look for corporate use."

Same thing when users bring in an Android phone like the T-Mobile G1 and wonder why the iPhone gets special status. Don't mention that you had to support the iPhone last year because the CEO bought one. But remind them that the maps and Web access and other features are fine for their personal use, and you'd love to hear about ways the phone makes them more effective on the job even without IT department support.

Likewise with netbooks. And Kindles. And smart pens. And pocket-size projectors. Say no, you can't support them — but yes, you'd love to get feedback on how well they work.

Then be sure to follow up. For some gadgets, the user's interest will dwindle naturally. In other cases, a user will conclude on his own that it's still a great device, but not for business use. That's a great, cheap, practical product evaluation — and all it costs you is a few words.

And if the user finds real business value in the gizmo? You can still say you can't afford to support it, at least for now. And he'll believe you — at least for now.

But he just might convince you that it can deliver a real competitive advantage — that it's the next iPhone or BlackBerry. And that's a gadget you can't afford *not* to support. ■

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